ESKERS
are ribbons of life in the boreal

Column 410
by Sarah Locke

Once enclosed by walls of Pleistocene ice, eskers can now be one of the most inviting and open of northern landscapes. Many are high, dry, and covered with grasses, weaving through landscapes ranging from boreal forest to boglands -- ribbons of sand and gravel showing where glaciers once flowed.

Dry sandy eskers are important features in the boreal forest.
(photo: Patrick Williston)

These sinuous ridges trace the paths of ice-age streams that flowed within the glaciers. Stones and finer sediments, melting out of the ice, built up in the stream beds, and -- when the glaciers retreated -- the winding forms of the eskers were revealed.

Technically, eskers are glaciofluvial landforms, as are outwash plains laid down along the fronts of the receding glaciers and kames deposited by the meltwater streams along the sides. These features ease the way for travellers of all types, humans as well as wildlife, and provide homes for many plant species not found in the surrounding forests.

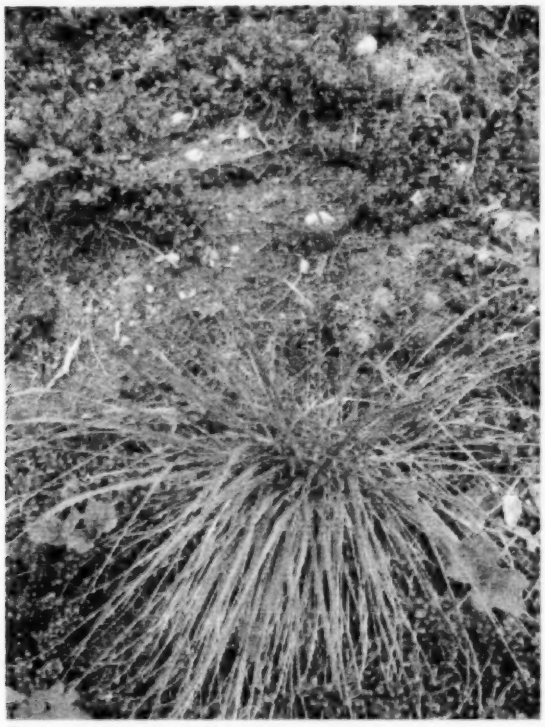
"The grassland south slopes of eskers are just really cool places anywhere in the North," says Jim Pojar, the executive director of the Yukon Chapter of the Canadian Parks and Wilderness Society. "You can see hints of Beringia all over the place, and I get a kind of atavistic thrill from them. When our ancestors in Africa came down from the trees and onto the savannas, they could have been sitting on hillsides superficially like these."

Pojar, a botanist who has co-authored several field guides, organized a study of eskers in the Liard Basin last summer. He helped two botanist colleagues determine what role these features play in the landscape, both as sites for rare plants and as wildlife habitat. Since eskers tend to be long, linear features, the researchers wanted to look at how they act as ecological connectors in the landscape.

"Eskers have been studied a lot in the subarctic barrens because they are often the

only well-drained dry places over vast landscapes, so wildlife really key into them," explains Pojar. "But no studies had been done on the connectivity role they play in the boreal forest."

"These little patches of non-forested habitat are really important, and that goes for the dry areas as well as the wetlands that are associated with them," he says.



Rice grass growing on an esker.
(photo: Patrick Williston)

In heavily forested areas like the Liard Basin, eskers stand out even more than on the open tundra. "I consider them almost intrinsically rare ecosystems in the Liard Basin as they probably cover less than 2 percent of the landscape; you get these little islands or stringers of unusual habitat that speckle the landscape, so just in terms of coverage of the land, they are uncommon and rare," he says.

Esker comes from an ancient Irish Gaelic word eiscir, meaning ridge. The Esker Riada, or Great Highway, cuts roughly across the middle of Ireland, and was once the main travel route between the east and west coasts.

On a smaller scale, northern eskers can serve the same functions. Patrick Williston, another of the researchers, spent three weeks studying eskers in the Liard Basin. "Nearly every esker we saw had a heavily used wildlife trail along its crest. It makes intuitive sense; usually it's the easiest route for travel."

The researchers speculate that wolves, coyotes, foxes and black bears use eskers and kames as travel corridors and as sites for denning. Researchers working in the Northwest Territories and Nunavut have found that wolves often excavate their dens in the dry, relatively loose soil of eskers.

Beavers travel on these dry slopes between their lodges and upland sites where they harvest trees. Lichens are abundant on eskers, making them important habitat for caribou as well.

These landforms are also important for plant diversity as almost half -- 44 percent -- of the plant species found in the Liard Basin grow on them, as well as two-thirds -- 17 out of 26 -- of the rare and infrequent plant species reported in the study. Other rare plants were found in nearby wetlands formed by kettles, the depressions created when large chunks of glacial ice melt in place.

Pojar hopes that when development is planned, more attention is paid to the ecological importance of eskers, which are often used as sources for sand and gravel

when new roads are being built. He points out that back in the 1940s, some sections of the Canol Road were built on eskers and kames as "that was the easiest place to build it, they just had to put the bulldozer blade down."

For more information on this work, contact Jim Pojar at (867) 393-8080.